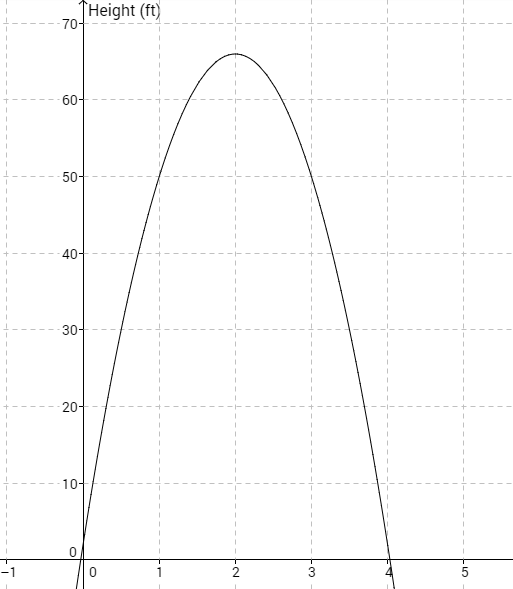
**CLASS COPY – DO NOT WRITE ON**

CW 24: Quadratics Day 2

**Honors Geometry**

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| **COPY THESE NOTES INTO YOUR NOTEBOOK.**   * *How can you tell whether a quadratic function has a maximum value or a minimum value at the vertex without graphing the function?*   **Positive quadratic: Negative quadratic:**   * *How can you graph a quadratic function by finding the axis of symmetry and the vertex?* |

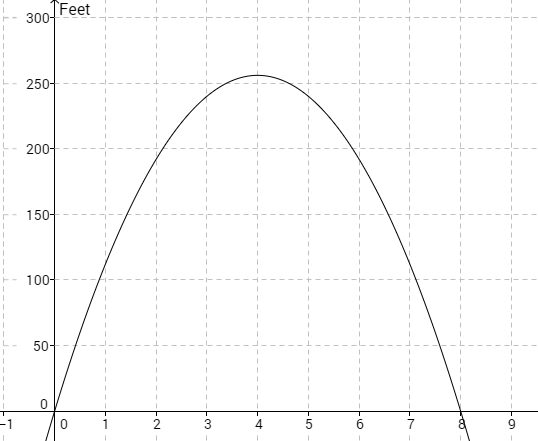
Bridget hits a softball that travels up in the air. The graph below shows the (time, height) relationship as the ball leaves her bat, travels through the air and finally falls to the ground.

1. Draw in the axis of symmetry. What is the equation of the axis of symmetry?
2. Mark the location of the **maximum** height with point A. What was that height?
3. What is the height of the ball at 1 second? Mark it with point B.
4. Consider the height that you recorded in part c. Mark on your graph the point when the ball was the same height as in part c but at a different time. Label this with point C.
5. When did the ball hit the ground? Label this with point E.

Do the following for each of the quadratic functions:

* Write the function in standard form
* Find the equation of Axis of Symmetry
* Find the vertex
* Determine if there is a maximum or minimum value @ vertex



9. The height *h* of a fireball launched from a Roman candle with an initial velocity of 128 feet per second is given by the equation where *t* is the time in seconds after launch. Use the graph of this function to answer the questions.

a. Find the axis of symmetry of the function.

b. What time is the fireball at its maximum height?

c. What is the maximum height of the fireball?

d. What time will the fireball hit the ground?

10. A compass is accidentally thrown upward and out of an air balloon at a height of 300 feet. The height, *y*, of the compass at time *x* in seconds is given by the equation .

a. Create a table and find the height of the compass at 1, 2, 3, 4 and 5 seconds.

b. Use the table to determine when the compass strikes the ground.

c. What is the maximum height of the compass?

d. What is the vertex of the quadratic function?